Vol. VII, No. 2 THE February 15, 1910

Psychological Bulletin

ASSOCIATION NUMBER

CONTENTS

PUBLISHED MONTHLY BY

THE REVIEW PUBLISHING COMPANY

41 NORTH QUEEN ST., LANCASTER, PA.,

AND BALTIMORE, MD.

AGENTS: G. E. STECHERT & CO., LONDON (2 Star Yard, Carey St., W. C.); LEIPZIG (Hospital St., 10); PARIS (76 rue de Rennes). MADRID: DANIEL JORRO (Calle de la Paz, 23).

Entered as second-class matter January 21, 1904, at the post-office at Lancaster, Pa., under Act of Congress of March 3, 1879.

Psychological Review Publications

EDITED BY

HOWARD C. WARREN
PRINCETON UNIVERSITY

AND

JOHN B. WATSON
JOHNS HOPKINS UNIVERSITY

JAMES R. ANGELL, UNIVERSITY OF CHICAGO (*Editor of the Psychological Monographs.*)

WITH THE CO-OPERATION OF

MANY DISTINGUISHED PSYCHOLOGISTS

THE PSYCHOLOGICAL REVIEW

containing original contributions only, appears bimonthly, on the first of January, March, May, July, September, November, the six numbers comprising a volume of about 420 pages.

THE PSYCHOLOGICAL BULLETIN

containing critical reviews, notices of books and articles, psychological news and notes, university notices, announcements, and shorter discussions, appears the fifteenth of each month, the annual volume comprising about 420 pages. Special issues of the BULLETIN consist of general reviews of recent work in some department of psychology, with original contributions bearing on the same topic.

THE PSYCHOLOGICAL INDEX

is a compendious bibliography of books, monographs, and articles upon psychological and cognate topics that have appeared during the year. The INDEX is issued April or May, and may be subscribed for in connection with THE REVIEW and BULLETIN, or purchased separately.

Annual Subscription to Review and Bulletin, $4.50 (Canada, $4.65, Postal Union, $4.80); Review, Bulletin, and Index $5.35 (Canada, $5.50, Postal Union, $5.65); Bulletin, Alone, $2.50 (Canada, $2.60, Postal Union, $2.70).

Current Numbers of the Review, 50c.; of the Bulletin, 25c. (special issues 40c.); of the Index, $1.

THE PSYCHOLOGICAL MONOGRAPHS

consist of longer researches or treatises or collections of laboratory studies which it is important to publish promptly and as units. THE PHILOSOPHICAL MONOGRAPHS form a separate series, containing treatises more philosophical in character. THE MONOGRAPHS appear at irregular intervals and are gathered into volumes of about 500 pages, with a uniform subscription price of $4.00. (Postal Union $4.30.) Each series may be subscribed for separately.

The price of single numbers varies according to their size (see list). Eleven volumes of the PSYCHOLOGICAL MONOGRAPHS have been issued, and the first volume of the PHILOSOPHICAL MONOGRAPHS is in progress.

LIBRARY OF GENETIC SCIENCE AND PHILOSOPHY

A series of bound books issued as accepted for publication. The price varies according to the size of the volume. Two volumes of the Library have already appeared.

Subscriptions, orders, and business communications may be sent direct to the Business Manager of the PSYCHOLOGICAL REVIEW, Johns Hopkins University, Baltimore, Md., or forwarded through the publishers or agents.

PUBLISHED BY

THE REVIEW PUBLISHING CO.,

41 NORTH QUEEN ST., LANCASTER, PA.

AND BALTIMORE, MD.

AGENT: G. E. STECHERT & CO., LONDON (2 Star Yard, Carey St., W. C.). LEIPZIG (Hospital St., 10); PARIS (76 rue de Rennes).

Vol. VII. No. 2. February 15, 1910.

THE

PSYCHOLOGICAL BULLETIN

PROCEEDINGS OF THE EIGHTEENTH ANNUAL MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION, BOSTON, DECEMBER 29, 30 AND 31, 1909.

Report of the Secretary.

The eighteenth annual meeting of the American Psychological Association was held in Boston on Wednesday, Thursday and Friday, December 29, 30 and 31, 1909, in affiliation with the American Association for the Advancement of Science. At the invitation of the Department of Psychology of Harvard University, Emerson Hall, Cambridge, was placed at the disposal of the Association and all sessions were held there. The privileges of the Harvard Union, Memorial Hall and the Phillips Brooks House were extended to the Association, and in every way the comfort and convenience of the members in attendance were secured.

The various sessions were uncommonly well attended, there being about seventy-five members registered, and an unusual number of visitors coming to hear the reading of the papers. The discussions of papers were more than ordinarily numerous and brisk.

On Wednesday morning, December 29, at ten o'clock, the meeting was formally opened by the President, Mr. Judd. After the usual preliminary announcement of the council's nominations for officers, the reading of papers was begun.

Perhaps the two most interesting sessions were that of Wednesday afternoon, which was devoted to abnormal psychology, with special emphasis on the work of Freud, and that of Thursday afternoon, when the reports of the Committee on Methods of Teaching Psychology were presented and discussed.

On Thursday evening, after the address of the President, the members of the Association were entertained by Professor Münsterberg at his house.

The program occupied three full days, and it is worthy of note that the first and last sessions were exceptionally well attended.

Abstracts of the various papers will be found below.

At the annual business meeting, held Friday forenoon, the following business was transacted:

The following officers, nominated by the council, were elected: *President* for 1910, Professor Walter B. Pillsbury, of the University of Michigan; *Members of the Council to serve three years*, Professor Ernest H. Lindley, of Indiana University, and Professor Robert M. Yerkes, of Harvard University.

On nomination by the Council the following candidates were elected to membership: Helen Dodd Cook, Ph.D., Wellesley College; Melvin E. Haggerty, Indiana University; Rowland Haynes, University of Minnesota; Clara M. Hitchcock, Ph.D., Lake Erie College; Harry L. Hollingworth, Ph.D., Columbia University; Ernest Jones, M.D., University of Toronto; Bruce R. Payne, Ph.D., University of Virginia; Florence Richardson, Ph.D., Drake University; David Camp Rogers, Ph.D., University of Kansas; Stevenson Smith, Ph.D., Hampden-Sidney College; Charles H. Toll, Ph.D., Amherst College; Herbert H. Woodrow, Ph.D., University of Minnesota.

The treasurer's report, audited by the council, was read and approved.

The place of the next annual meeting was then discussed. On behalf of the council the President presented an invitation from Mr. J. B. Miner to meet at Minneapolis and one from Mr. E. C. Sanford to meet at Worcester. The President further reported the recommendation of the council that the invitation to meet in Minneapolis be accepted. After some discussion, it was moved to accept the council's recommendation. The count of votes showing a tie, the Chair cast the deciding vote in favor of Minneapolis.

In view of the fact that the American Philosophical Association is to meet next year in Princeton, and in view of the fact that Professor Warren bespoke a warm welcome for those members of the Psychological Association who might wish to meet with the Philosophical Association at that time, it was further voted that it be suggested to the council to make provision next year for a sectional meeting to be held in the east, at Princeton, if feasible, under such designation and control as the council may determine.

A motion to the effect that the Association hold meetings every other year only, and that sectional meetings be held in alternate years, was referred to the council for report.

The following action of the council was reported: Whereas it is the opinion of the council that the connection of Psychology with Anthropology in Section H of the American Association for the Advancement of Science has outgrown its usefulness and does not sufficiently recognize the dignity of Psychology as a science, the council recommends the following resolution: Resolved that the Association instruct its delegate to suggest to the council of the American Association for the Advancement of Science that the word 'Psychology' be dropped from the title of Section H and that provision be made for a separate Section of Psychology.

A motion to postpone action on this recommendation of the council for one year was lost. It was then voted that the council be asked to confer with the council of the American Association for the Advancement of Science with reference to the relation of Psychology to that Association.

It was voted to adopt the recommendation of the council that an appropriation of $150 be made for the publication of the report of the Committee on Methods of Teaching Psychology.

A resolution to the effect that in the opinion of the Association it is inadvisable that the International Congress of Psychology meet in America in 1913, was referred to the council, with power.

On motions by Mr. Yerkes it was voted (1) that the sentiment of this Association is in favor of the establishment of a Journal of Animal Behavior; (2) that the council be requested to consider the appropriation of one dollar per member toward the support of a proposed Journal of Animal Behavior, provided that those members of the Association who desire the Journal shall be entitled to it for the sum of four dollars per year.

It was unanimously voted that a hearty expression of thanks be extended to Professor Münsterberg and to the other members of the Department of Psychology of Harvard University for their hospitality and for the various courtesies enjoyed by the Association during the days of the meetings.

It was voted that the proceedings of this meeting be printed.

Report of the Treasurer for 1909.

Dr.

To balance from 1908 meeting	$2 958.01
Dues received from members	214.40
Interest from July 1, 1908, to July 1, 1909	111.22
Petty cash on hand January 1, 1909	10.02
	$3,293.65

CR.

Stationery and printing	$64.74	
Clerical assistance	9.20	
Postage	37.35	
Express and telegram	2.07	
Travelling expenses (1908 meeting)	29.63	
Baltimore smoker	27.00	
Appropriation to Committee on Methods of Teaching Psychology (voted by Council)	51.49	
Exchange on checks	.76	
Petty cash on hand	.70	
		222.94
Balance in Union Dime Savings Institution	$2,864.86	
Balance in Fifth Avenue Bank	205.85	3,070.71
		$3,293.65

A. H. PIERCE,
Secretary and Treasurer.

NORTHAMPTON, MASS.,
December 19, 1909.

Audited by the council.

ABSTRACTS OF PAPERS.

President's Address: Consciousness and Evolution. CHARLES HUBBARD JUDD.

(This address will be published in full in the PSYCHOLOGICAL REVIEW, Vol. XVII., No. 2, March, 1910.)

The Complication Experiment and Related Phenomena. KNIGHT DUNLAP.

Burrow has shown that the characteristic results of the so-called complication experiment do not depend essentially on complication, but are found as well when visual stimuli alone are used. Using his apparatus, with slight modifications, and with sound as the discrete stimulus, I have found that *exact fixation* of the stationary mark during the passage of the pointer, practically does away with the usual time-displacement. With exact fixation, at moderately fast rates, the pointer is reduced to a mere blur. With *normal fixation* the pointer is seen rather distinctly at or near the stationary mark, and displacement occurs. This indicates an eye-reaction, similar or analogous to the movement which brings out a sector in a rapidly revolving disc. In the latter case, as in the complication experiment, the eye during the critical moment distinctly sees fixed objects as well as the moving object.

A third form of judgment is possible in the complication experi-

ment. In this form, the eye actually pursues the pointer, and a positive error almost always results. A slotted disc revolving in front of a round light-spot wider than the slot gives means of observing accurately the effects of pursuit.

Finger-reactions to rhythmic stimuli show practically exclusive anticipatory reactions, except in the case of a subject giving positive errors in the complication experiment. This agrees with the fact of a usual negative error. A reaction which seems subjectively to follow closely on the stimulus is more satisfactory, to most subjects, than the reaction which intentionally and apparently synchronizes with the stimulus, and actually gives less error.

The errors in the classic experiments undoubtedly depend on rhythmic reactions which are with most subjects at first anticipatory, but which, with practice, change with many subjects to the more satisfactory delayed type. The pursuit of the pointer has been of little effect, because it occurred only during the first or first few rotations in the few instances concerning which we have evidence that this method of observation was employed at all.

Time judgments enter to a very slight extent into the results. The judgments, where exact fixation is not employed, rest almost exclusively on rhythmic reactions and spatial discriminations. This gives accuracy greatly in excess of what is possible on the basis of a time-judgment.

A New Phase of the Attention Wave Problem. W. B. PILLSBURY.

It is generally admitted that the so-called 'attention wave' does not measure the length of time that one may attend. It occurred to the writer that one might measure this time directly. The problem was suggested to two students, Messrs. Work and Billings, who worked at the problem independently and each in ignorance of the results of the other. The material chosen was ordinarily a point in a picture. The observer was asked to record on a kymograph the time the point was seen. Whenever any other object or any thought became more prominent he was to record the fact.

It was found that the time of attention was much shorter than with the ordinary fluctuations. They varied from 0.1 second or less to 10 seconds. The average for a series of from 6 to 80 ranged from 0.5 second to 4.0 seconds for one trained observer. All the longer series for three trained observers ranged between 1.0 and 2.0 seconds. The average for 8 untrained or slightly trained observers was 2.5 with a mean variation of 0.68. It is probable that the values tend to be too long, since one is usually too interested in the object of attention to note that attention has changed.

The fluctuations are different from the 'attention waves' in that (1) the stimulus is always supra-liminal, (2) the change is always ascribed to the subject, the object being regarded as unchanged, (3) the times are more nearly in harmony with the time required to prepare for a reaction, with the association times and the indifference times if they exist.

The Tactual Filled-Unfilled Space Illusion. HELEN D. COOK.

The paper reports a series of experiments undertaken originally in order to reconcile and if possible to explain the contradictions in the results of previous investigators. The spaces to be compared may be presented to the subject by letting him move his finger over the stimulus, or by moving the stimulus over his passively held finger ('active touch' and 'passive touch'), or the whole stimulus may be set down at once on the subject's forearm. Only this second form of the illusion was investigated, and the surface stimulated was the volar surface of the left forearm. The experiments fall into three parts. In Part I. a filled space (row of points) and an unfilled (two-point) space were placed successively on the same surface, with the result that all filled spaces, independent of their length, were *under*estimated, and the amount of underestimation increased with increase in the subjective distinctness of the points in the 'filling.' In Part II. a filled and an unfilled space were placed simultaneously on adjacent parts of the forearm in the same relative positions which they occupy in the common form of the visual illusion. Here all filled spaces were *over*estimated, usually very strongly. In the experiments of Part III., finally, the filled and unfilled spaces were presented successively but in the same relative positions as in Part II. The result was a practical disappearance of the illusion. The illusion in its first form cannot therefore be caused by fusion due to a 'peripheral irradiation' of the stimulation from the points of the 'filling,' as Parrish and Rieber supposed. The introspection of the subjects, when taken in connection with the numerical results, shows that both the direction and the amount of the illusion depend mainly on the subject's mode of apprehension (*Auffassungsweise*) of the spaces to be compared.

The Nature and Causation of the Galvanic Phenomenon. BORIS SIDIS.

The galvanic phenomenon, or galvanometric deflections in response to sensory stimulations and induction of emotions, is regarded by almost all investigators of the subject as the function of bodily resistance; it

is claimed that emotional and affective states tend to lower electrical resistance. In a series of experiments performed on human subjects, published in the PSYCHOLOGICAL REVIEW for September, 1908, and January, 1909, we have shown that we deal *here not with resistance, but with the actual generation of an electromotive force.* In a new series of experiments performed on animals this fact of generation of an electromotive force under the influence of stimulations and affective states is further confirmed and conclusively demonstrated.

The proximate cause of the galvanic phenomenon has been ascribed to circulation, to glandular effects, to skin secretions, to changes of the sympathetic and central nervous systems and possibly to all of them combined. All these various hypotheses are frankly admitted by the investigators who advanced them to be only provisional, unsatisfactory guesses. In our experiments on animals we have by a rigid series of experiments eliminated skin secretions, circulation, effects of the sympathetic and central nervous systems, and have demonstrated that the galvanic phenomenon is of muscular origin.

(The experiments last referred to will be published in the PSYCHOLOGICAL REVIEW for March, 1910.)

The Autokinetic Sensation. HARVEY A. CARR.

(This has been published in full in the PSYCHOLOGICAL REVIEW for January, 1910.)

The Localization of Diasclerotic Light. G. M. STRATTON.

It has been supposed as a result of recent investigation that the localization of light coming through the sclerotic coat follows a different law from that of light coming through the pupil; that it is in many cases localized on the same side as that upon which the stimulus falls instead of upon the opposite side.

There seem to be grave reasons for doubting the truth of this. Localization of light which falls far forward upon the sclerotic coat appears in only the vaguest outlines. As soon as it becomes at all definite, then the localization is entirely normal. This zone where the localization is upon the same side as the stimulus seems to correspond roughly with the region anterior to the *ora serrata*, where there are no sensitive elements.

It seems probable that where the localization is apparently abnormal, it is due to diffused light coming through the sclerotic coat and reaching no elements sensitive to light until it passes through to the opposite side of the bulb of the eye. From there it is localized upon the side opposite to the elements affected, and consequently, the abnormality of localization is only apparent.

Mental Causes in Dementia Præcox. FREDERIC LYMAN WELLS.

The question has been raised whether the group of conditions now summed up under the name of dementia præcox may not be essentially due to the effects of bad mental habits rather than to an autonomous disease process. The objections to such a view are that dementia præcox may develop on a mental make-up in which no specific peculiarities are evident, and that the cases in which the so-called 'repressive' tendency is prominent do not constitute a sufficiently large proportion of the dementia præcox group. It is very improbable that the theory of mental causes can maintain itself with the conception of dementia præcox as a disease entity; though it is an open question whether psychogenic factors may be the sufficient cause of certain conditions now included in the dementia præcox group. Too little positive evidence, however, has been adduced to show why such a conception should be superadded to the present theory — perfectly adequate to all the facts — that dementia præcox is a disease process manifesting itself most frequently in cases with a certain diathesis most evident in the mental make-up.

Freud's and Bergson's Theories of the Unconscious. JAMES J. PUTNAM.

The terms 'subconscious,' 'co-conscious,' 'unconscious,' 'subliminal' and others of like sort, have found favor of late years, especially among neurologists and mystics. Certain professed psychologists, on the other hand, have opposed their too general employment, urging that the presence of 'conscious awareness' ought to be demanded before any mental process can be declared to be conscious in its nature, and that much of that which has been classified as 'mental' should rather be regarded as 'physiological.' The discussion is too familiar to need further exposition here and is brought up afresh only for the purpose of calling attention to the contributions of the investigators designated in the title of the paper, as being less well known than those of other able writers who have illuminated this subject.

In Freud's view, the mental lives of many persons develop on two general lines. One of these lines is that of the socially conventional education to which all of us are subjected; the other is that somewhat irregular education largely dominated by instinct, whim, desire and passion. Ineffective attempts to suppress all tendencies that cannot be utilized in education of the first sort lead to an ill-regulated education of the second sort. The primary source of these desires is the sex-instinct, and the secondary life led by the individuals in question

is a web of repressions, neurotic tendencies and symptoms, through which instinctive attempts are made to find substitutes (which in practice prove inadequate) for more normal outlets of this powerful passion. This secondary life goes on, in large measure, without the 'conscious awareness' of the patient, and yet is elaborate and consequential. A stream of thought may, during one period, be recognized by consciousness, during the next pass out of sight, and finally reappear. Dreams may occur which seem to represent momentary outbreakings of such mental streams, and in them the influence of desire and repression may be represented side by side.

It is certainly convenient to classify this secondary life under some heading which takes cognizance of its apparently purposive, highly organized character, and the terms 'subconscious,' 'unconscious,' 'vorbewusst,' etc., seem appropriate for the purpose.

In deciding whether this is justifiable, appeal will be made to Bergson's views as to the individual service and mutual relationship of bodily and mental processes, in normal life. The general tendency of these views is affirmative as regards the claim that conscious awareness is not an essential feature of productive mental activity.

The remainder of the paper is taken up with a statement of Bergson's position in respect to normal psychology and its adaptation to the case in hand.

Dreams. MORTON PRINCE.

Freud's Theory of Dreams. ERNEST JONES.

Freud's contributions to this subject are so elaborate and far-reaching that only a brief exposition of them can be given in this paper. Dreams are not, as is generally supposed, a meaningless conglomeration of psychical processes irregularly evoked by either chance somatic excitations or past memories. They are in direct continuity with the rest of the mental life, and their apparent meaninglessness and the senseless confusion that so often characterizes them are due to certain precise causes. Dreams are products of the fantasy and represent the imaginary fulfilment of a wish process significant to the subject. In the adult the underlying wish is always of such a nature as to be inacceptable to the subject, and on account of this it has become dissociated by the process of psychical 'repression.' The distortion undergone by the wish is the inevitable result of the compromise between it and the opposing force exerted by the 'censor' of consciousness; it is brought about by means of certain well-established psychological mechanisms. This accounts for the apparent discrepancy between the

'manifest' dream content and the underlying 'latent' content. The latter can be reached only by the application of the psycho-analytic method. The interpretation of dreams is the most valuable means at our disposal for studying the deepest and most significant mental processes of the personality.

Fundamental States in some Forms of Psychoneurosis. BORIS SIDIS.

The main trait of psychoneurosis is the interconnectedness of the symptoms, the morbid manifestations form a well organized system. This system has a tendency to develop into a parasitic personality foreign to the patient. One essential characteristic of functional psychosis or psychoneurosis is the periodicity of the appearance of the system. This last trait is so characteristic that the attacks are described as recurrent mental states. The violence of the attack, the dissociation of the system, and its subconscious character may be further added to the description of the symptom-complex of psychoneurosis or of functional neurosis.

The attacks can be traced to mental trauma, to emotional shocks, and especially to experiences of early childhood. These experiences are by no means of a sexual character as Freud and his followers claim. A close study of psychoneuroses of the phobia type can unmistakably be referred to two fundamental states of early childhood: *a primitive fear of the unfamiliar characteristic of all animal life and an over-developed sense of the mysterious cultivated in early childhood by social, moral, and especially by religious training.*

Psychopathological Misconceptions of the Psychologist. SHEPHERD IVORY FRANZ.

Visual Discrimination in Raccoons. L. W. COLE.

The purpose of the experiments was to learn, if possible, whether the raccoon has color vision. The objects presented to the animals for discrimination were six ordinary drinking-glasses covered with colored papers of equal and nearly equal brightness. From one of these glasses the animal could obtain food. Selecting this glass constituted a right choice, while touching any one of the other glasses was recorded as an error.

To obtain evidence as to the presence of color vision it was necessary (1) to compel discrimination by preventing the animals from exploring the feeding vessels by touch, (2) to eliminate the possibility of discrimination by means of odor differences, (3) to eliminate the possibility of discrimination by brightness differences.

The raccoons seemed not to discriminate at all so long as open glasses were used into which they could thrust their paws. Consequently the glasses were clamped with their tops immediately underneath a horizontal board. As soon as this was done the records showed successful discrimination.

Presumably the animals might be guided in this discrimination by odor differences due (1) to the smell of food in the food glass, or (2) to the smell of the animal's paws due to their more frequent contact with this vessel, or finally (3) to a difference in the odor of the pigments of the colored papers.

Food was placed in all the glasses with no change in the record of right choices, thus the first possibility seems to be eliminated. To meet the second difficulty we made six food-glasses, all of the same color, and changed from one to another every fifth trial. In addition, we presented these six glasses simultaneously to ascertain whether the animal could select the one used as a food-glass. Failure occurred uniformly in all these tests.

To eliminate discrimination by means of possible differences in the odors of the pigments, the colored papers were put inside the glasses in one series of trials and in another the paper-covered glasses were covered with shellac. In the latter case the animals readily learned to make thirty consecutive right choices, in the former twenty-five. Finally the animals could not select the food-container in the dark. We decided, therefore, that the discrimination was not olfactory.

The possibility remained that the discrimination was due to brightness differences in the colored papers used. One of our animals, however, after having selected Gray 5 from among a group of colors more than thirty consecutive times 'confused' it with Gray 4 seventeen out of thirty trials when the selections had to be made from a group of grays. Grays 4 and 5 are quite different in brightness. The animals could not select a food-glass from a group covered with the same shade of gray, or colored paper. Thus we have no ground for supposing that these animals detect brightness differences imperceptible to man. Further, we used colors of equal brightness with the food-color as measured by Rood's flicker method, and we also used a few colors differing from it in brightness. The animals made the same average number of errors on each of these two classes of colors. Hence we may be fairly certain that our animals were making their selections by differences in color alone.

In the course of the experiments the animals selected nine different colors and one gray from groups of papers equally bright for the

human eye. In many of the experiments they made thirty correct choices in thirty trials and in no case did we discontinue training until twenty-five right choices in thirty trials were made.

Since by reason of nocturnal habits the raccoon is regarded as necessarily color-blind, we propose to test this animal further by the Yerkes-Watson method which had not been described when these experiments were made.

Some Visual-Motor Coördinations in the Rat. FLORENCE RICHARDSON.

The results of experiments in which rats were taught to jump from one platform to another show that, in these animals, vision is not essential as a control for learning to jump distances up to and including fifteen inches, but is, seemingly, essential for accomplishing longer jumps. When the distances were gradually lengthened, the animals accommodated themselves to the change apparently by means of a trial and error method based upon tactual and kinæsthetic impressions. When the distance was lessened from twenty-four inches to eight inches, the animals, having established a habit of jumping longer distances, were unable to shorten sufficiently the length of the jump. This may be due either to the failure of the visual impression to convey information as to the distance of the stimulus or to the tendency of the amount of innervation released to become relatively fixed through habituation, and thereby very difficult of modification.

When the *direction* of the stimulus was changed, the animals were quite readily able to modify successfully their reactions. This series of tests seemed to give evidence of the function of a distance receptor. The possibility of the use of olfaction as a control had been previously eliminated from consideration, and audition could not have served in this case. Therefore, it seems evident that vision had successfully controlled the adjustment to a distant stimulus under changed conditions. While vision seemed capable of affording evidence concerning the *direction* of a distant stimulus, it was apparently not alone capable of controlling the amount of innervation necessary to make the requisite readjustments. In other words, it did not operate so as to furnish information concerning the third dimension.

The Visual Perception of Size in the Dog. ROBERT M. YERKES.

With an improved form of the brightness apparatus which has been used for several years in the Harvard Psychological Laboratory Mr. M. E. Haggerty is testing the ability of the cocker spaniel to

discriminate two visual fields whose only constant difference is in size. The apparatus permits of accurate control of brightness, size, and form.

The results to be reported in this preliminary statement are: (1) The animal persistently sought to discriminate by other factors than size, and for weeks succeeded in foiling the efforts of the experimenter to force dependence upon a single visual factor. During the early tests the animal gave no attention to the visual fields. (2) It has proved practically impossible to obtain persistent attention, with efforts to discriminate, by the use of hunger as a motive for choice. The experimenter is inclined to think that some form of punishment for incorrect choices will have to be employed if the maximum power of discrimination is to be revealed. (3) The animal has demonstrated its ability to distinguish an illuminated circular area four centimeters in diameter from an area six centimeters in diameter.

Preliminary Experiments on Anthropoid Apes. M. E. HAGGERTY.

Experiments were made in the New York Zoölogical Park on three anthropoid apes, a chimpanzee and two orangs. One problem was to pull in food from a table by means of a hooked stick. The other problem was to use a stick in poking food out of a five-centimeter hollow iron pipe fastened 70 cm. from the floor of the cage. The chimpanzee learned neither of the problems alone. He was allowed an extended series of observations of an orang pulling in food with the stick, but still did not learn to do the act. Both orangs pulled in food at their first trial, and one learned unaided to poke food out of the pipe. The other orang failed to learn unaided, but did learn by watching the first orang do the act. The experiments were too scanty for generalization, but suggest (*a*) a remarkably fertile field in the apes for the investigation of animal intelligence; (*b*) a definite and precise limitation of the sense-impulse theory of animal learning; (*c*) a greater rôle for imitation than among any lower species.

A Working Hypothesis for Comparative Psychology. WM. H. BURNHAM.

A thorough application of the genetic method would save us from the fallacies surviving from the old faculty psychology. The hypothesis proposed is so closely in harmony with our present knowledge that it may not seem new, but if stated before it has not been generally adopted. I would suggest that we should assume not only an evolution of the mind but also of the different mental powers. Instead of speaking of different levels of intelligence it is more correct to speak of different

levels of perception and memory and judgment. There may be just as many gradations in the development of perception and judgment as there are stages of organic development. It was long ago shown that we have not one faculty of memory but many memories, and the genetic point of view suggests that there are as many gradations in the development of memory as there are stages in evolution from the amœba to man. Certainly there is a great gap between the organism which has merely memory for food and certain movements and the animal like the dog which has memory for odors, sights, and complex situations.

We find no dramatic beginning even of the power of associative memory. Thus without any anthropomorphic fancies in attributing to the lower the attributes of the higher, we may assume that the amœba has the power of profiting by individual experience and even that it has the power of memory for movement and certain vague organic impressions connected with the taking and assimilation of food, and nevertheless maintain that the gulf between its memory and that of the higher animals is as great as the old psychology deemed it to be between protoplasm and man.

Our difficulty comes from the fact that we are prone to look upon memory and perception and will as indicating in some way a high order of psychic development, whereas the essential question is not whether an animal has memory or not but what kind and degree of memory it has and how complex are the situations to which it responds.

The whole mind acts in the various fundamental mental processes, perception, attention, memory, and the rest. The view here suggested is in harmony with this psychological doctrine. Instead of a hierarchy of different faculties we have here a hierarchy of stages in the development of each faculty or rather each fundamental mental process.

Personal Differences in Suggestibility. WALTER D. SCOTT.

Suggestibility has been assumed to be a definite 'faculty.' It is uniformly asserted that any particular group of individuals could be subjected to a single simple test and ranked according to their suggestibility. These assumptions do not admit of verification. The ordinary tests for suggestibility result in but low correlations. Practically, a zero coefficient of correlation was obtained from two ideal methods of testing for 'suggestibility in general.' Such a result proves the necessity for a more careful analysis of the mental processes involved in any display of suggestibility.

Defective Color-Vision among Women. SAMUEL P. HAYES.

It is commonly maintained that color-blindness is very much rarer among women than among men (4 per cent. among men, 0.1 per cent. among women), and that one reason for the difference is the fact that color-blindness is ordinarily transmitted through women without affecting them. A search through the literature upon color-vision has discovered a number of genealogies of color-blind families in several of which the mothers as well as the children have been color-blind. Among 457 women college students, tested with the Nagel cards, 104 have made mistakes which indicate some deficiency in their color-sense. Of these, 23 have been examined further in the laboratory: two are undoubtedly color-blind, and four others probably are, though no two of the six show exactly the same degree of color-deficiency. The remaining 17 show different degrees of color defect — their color threshold is above normal and they make minor color-confusions, but they cannot be satisfied with the dichromat equation, even when a considerable amount of blue and white are added to the red and green compared. A difference in the functioning of the two eyes was frequently observed. Among the 457 tested, 44 made mistakes with one eye only, while 23 others made different mistakes with each eye. The deficiency is most marked on one side in 5 of the 17 color-weak subjects and in 3 of the 4 color-blind suspects.

Report of the Committee on Methods of Teaching Psychology.

1. General Report: Recommendations. CARL E. SEASHORE, *Chairman.*

2. In the Normal Schools. G. M. WHIPPLE.

3. In the Colleges without Laboratories. MARY WHITON CALKINS.

4. In the Colleges and Universities with Laboratories. J. R. ANGELL and E. C. SANFORD.

(This report will be published in full.)

The Form of the Color Pyramid. HOWARD C. WARREN.

Visual qualities are usually shown in a figure of three dimensions; grays are represented along a vertical axis, color-tones in angles about this axis, differences of saturation (chroma) in distances from it. Granting this scheme best represents the facts, there are two objections to the forms given in our text-books. (1) The proportion between axis and circumference is wrong. There are about 700 distinguishable grays and 160 distinguishable saturated hues. Polar length, therefore, should be about 14 times the greatest diameter. In all

published figures the axis is less than 3 times the diameter. (2) The shape of the circumference (which I will call the 'color belt') needs revision. It is variously shown as square (Ebbinghaus, Titchener, Calkins, Angell), circular (Ziehen, Witmer), and triangular (Helmholtz, Wundt). These constructions rest on particular color theories. But the form should be determined experimentally. Two problems are involved. (*a*) Number of hues in the color belt. Taking one unit-length for each perceptible difference, we determine the *size* of the circumference, but not its *shape*. (*b*) Number of chroma differences. We have to determine the perceptible differences between gray and spectral end-red, between gray and the next spectral red, and so on for each of the 160 hues; this gives radial distance of each point on the belt. The belt is probably an irregular circle, with one flat segment for purples. Three further questions arise. (1) How much is the color belt tilted? (2) At what level on the axis should the belt be placed? The 'single cone' figure seems unjustified. (3) Can all visual qualities be shown on the same scale in physical space? If there are more chroma-differences from yellow to gray and thence to blue, than there are hue-differences from yellow to blue, physical representation would require smaller units for chroma than for hue. The evidence at hand shows that the figure is neither cone, sphere, pyramid, nor octahedron. In view of the known facts the most appropriate term is the *color spindle*.

The Study of Perception as an Introduction to the Æsthetics of Architecture. ETHEL PUFFER HOWES.

What Social Objects does Psychology Presuppose. GEO. H. MEAD.

Current psychological practice is responsible for the use of the term 'consciousness' as if it were a 'soul.' This use arises out of the parallelistic treatment of the subject-matter of psychology. Corresponding to the central nervous system, or its states, there is presupposed an island of consciousness whose states parallel the neuroses. This use of consciousness makes a consistent philosophy of nature impossible. The phase of the situation to which the paper directed especial attention, was the view of the self as a growth within this field of consciousness, which is assumed to be open directly only to introspection and to be a presupposition of the consciousness of other selves. An analysis of the self-consciousness open to introspection undertook to make evident, on the contrary, that the whole development of the consciousness of meaning through gesture and its derivative language presupposes selves as preëxistent, logically, to

the self *of* introspection. Selves are social objects which psychology must presuppose as definitely as it presupposes the physiological objects — the physical organism and its nervous system. Ultimately psychology will accept the definition of this object from the social sciences as it accepts the definition of the physiological object from the biological sciences. These sciences will state the social conditions under which self-consciousness is possible as physiological science states the physical conditions under which consciousness is possible.

Notes on the Viatility of Attention. GEO. V. N. DEARBORN.

The determination of the attention-line from moment to moment is physiologically the selection of the pathways through the central nervous system concerned in the adaptive reaction or tendency thereto (innervations).

The universal group-action of the nervous system as well as the vast complexity of the always unique conditions, makes it inevitable that there should be no simplicity in this attention-line process. It is therefore idle to seek a simple rule-of-action or 'theory of attention.' The best we may hope for is sometime a concise descriptive summary of the nervous influences and other circumstances involved in this viatility or path-selection.

What may be termed the kinetic basis of the attention-impulses through the central nerve-system consists apparently in large part of nervous circuits. These are of many different lengths, the shortest, probably, being comprised within the sympathetic arc of one viscus, for example, while the longest extends from voluntary muscle to the cerebral cortex and round again to (other fibers of ?) the same muscle or functional group of muscles. These manifold and unceasing group-streams of nervous influences exert their effects on the bodily activity through balances or resultants within and between them.

Conspicuous among the many determining influences of the centra. nervous system for any attentive innervation we may mention four, viz.: 1. The relative degree of vasomotor congestion in various functional groups of psychomotor neurones of the sympathetic, the cord, the cerebellum, and the hemispheres. This we may suppose of especial importance as a determinant of the reflex attention-line.

2. Streams of nervous influence on the one hand from numerous habit-groups of neurones in the central nervous system proper, representing the personal interests (habits) of the individual; and on the other hand from the sympathetic ganglia and plexuses, standing for the person's basal biologic interests (instincts and vegetative habits, nutritional, sexual, etc.).

3. In manner more or less like the relative vasomotor congestion, the relative 'fatigue-rest balance' or liability to action, exerting influence on the attention-line impulses in the nervous system, tending to draw the effective balance over its pathway because that of least resistance.

4. Tides of sensation-influence from all the sensory fields pouring into the central nervous system, with a tendency for the effectively strongest or most unusual to determine the attention-line on the (still unknown) principles of reflex distribution. In forced voluntary attention this factor of viatility might be nil, serving only to increase the general inhibition-strain.

Rhythm of Religious Emotion in a Diary of 1814–1818. C. B. Bliss.

A diary found in an abandoned house, begun in 1814, when the writer was between nineteen and twenty, kept four years with painstaking accuracy, recording only personal religious experience, in a quiet secluded town where life was simple and distracting events few and far between, furnishes excellent material for a study, among other things, of the stream of religious emotion. First reading shows constant variation. Transcribing items of emotion and indicating their intensity by rough marks on the margin, shows a grouping of the days of deep feeling. A more careful examination was made by indicating the amount of satisfactory emotion, called 'affection,' 'relentings' and 'heart-melting,' by vertical lines from a common base at equal spaces. These were summed up first by pricking pinholes through black paper laid under the record for each month successively, and then printing the holes on sensitive paper, thus producing a composite photograph of the impression of intensity made by the words of the writer on the mind of the reader. A second method simply added together the vertical lines for the corresponding days in each week, for the corresponding days in each month, and for all the days in each month consecutively, thus showing the weekly, monthly, and yearly rhythm indicated by the curves on the charts. . . . The totals for the successive months fall off from the beginning to the end, with variations due to special conditions. . . . The monthly curve shows a maximum on the tenth, with a rise from the sixth and a fall to the fourteenth day. . . . Other apparent maxima on the fourth and eighteenth are less certain. . . . The weekly rhythm for the first two years is high Sundays and low Wednesdays. . . . Further study of words used might change the form of the curves somewhat. . . . Many

associated problems suggest themselves. . . . The diary contains 901 entries, and 4,500 words, and would seem to be well worth printing, for its value as material for study as well as for its intensely human interest.

The Correlation of Pitch and Intensity Discrimination. W. W. NORTON, reported by J. B. MINER.

Tests were given to 276 college students divided into groups of about 40 each. The pitch tests were made with small forks on a resonator and with a sonometer using a sliding bridge on one string. The method was nearly like that found most satisfactory by Seashore in attempting to standardize the form of pitch test in connection with the work of the committee of the Association. A standard of 435 v. was compared with a graded series varying from it by 30, 23, 17, 12, 8, 5, 3, 2, 1, ½, 0 v.d. and then back again. The median of three of these double series was taken as the observer's record. The position of the standard in each comparison was determined by chance. The observers were told that the sounds would approach identity, some would be given that were alike, and then the sounds would become different again. The test for intensity discrimination was given similarly with a falling pendulum, using 90 degrees for the standard sound and having the others differ from it by just twice the quantities used for pitch but expressed in degrees. The practice was distributed over the three different tests as far as possible.

In the sonometer test the average discrimination was 5.8 v.; M.V., 4.7; mode, about 2.5 v. In the fork test the average was 6.0 v.d.; M.V., 4.2; mode about 3.5 v.d. In these tests practically two-thirds of the cases fell between 0 and 4.5 v.d., showing that the curves were decidedly skewed. The coefficients of correlation were, for sonometer and forks, Pearson method, .75; median ratio, .89; modal ratio, about 1.0. For sonometer and intensity, Pearson, .39; median ratio, .67; modal ratio, .65. Forks and intensity, Pearson, .30; median ratio, .45. The reliability of the pitch tests is indicated by their close correlation. The validity of the intensity test awaits further knowledge of the reliability of the falling pendulum. Further interpretation may be possible after certain factors, especially practice, have been studied. With similarly skewed curves the Pearson coefficient is apparently not as characteristic as Thorndike's median ratio. There appears to be no satisfactory way of expressing the variability in the correlation when the distributions are not normal except by giving the entire correlation tables. These tables were shown graphically and

also the distribution curves for each test and for the ratios between sonometer and intensity tests reduced to equivalence in variability.

Eye Movements in Children's Reading. W. F. DEARBORN.

A study has been made of the reading of children in the early grades by securing photographic records of the movements of their eyes in reading. These records have been compared with the results of tachistoscopic experiments on the same pupils, with a view to determining an objective test of the progress of pupils in learning to read, and of the success of various methods of teaching reading. It is believed that the records of the number (and duration) of the pauses of the eye usually indicate the actual working span of attention, and are in this respect superior to tachistoscopic records. The number of pauses made in reading a line of words may show, for example, whether a child who has been taught by the word method really reads by word-wholes or not, and thus furnishes an indication of the pupil's progress, and the success of the method of teaching employed.

Discriminative Sensitivity of School Children. JAMES E. LOUGH.

The experiments here reported were made for the purpose of testing the discriminative sensitivity of school children by a method that can be used with any number of children under ordinary school-room conditions. The method gives very satisfactory results. Children readily comprehend what they are required to do, and mark the papers according to directions with practically no interference of regular school-room routine. Sheets of paper were printed with twenty rows of dots; three dots in each row. The distance from the middle dot to one of the end dots was constant—8 cm., while the distance to the other end dot varied by millimeters from 7 cm. to 9 cm. This sheet was covered by a second sheet in which a slit was cut, so that but one row of dots could be seen at a time. The two sheets were given to school children with instruction to mark each row + or — as the distance between the middle dot and the right end dot seemed greater or less than the distance between the middle dot and the left end dot. Care was taken that nothing in the arrangement or order of the dots should serve as a clue.

The results of the investigations are presented here in the form of a preliminary report. A study of children of the third, fifth and eighth grades shows that the best power of discrimination is to be found in the eighth grade and the least power of discrimination in the third grade. A study of three groups of sixth grade girls was made

to see if there is any variation in discriminative sensitivity with variations in school standings, one group of ten girls being selected from the best pupils of the grade, another group of ten from the average pupils of the grade and one group of ten from the poorest pupils of the grade. It is found that the best pupils show the best power of discrimination and the most improvement with practice, and that the poorest pupils show the least power of discrimination, and practically no improvement with practice.

Fatigue and distractions (music, conversation, odor, etc.) interfere with the discrimination of children more than in the case of adults, and practice improves the power of discrimination more rapidly in children.

A Genetic Study of the Psychology of Shame. THEODATE L. SMITH.

In attempting a study of any emotion the first thing to be considered is the possible sources of material for such an investigation. Here experimental psychology can offer as yet but little. Only the simplest emotions have thus far proved susceptible to laboratory tests, and the results of plethysmographic experiments have not been commensurate with the amount of labor bestowed upon them and are lacking in definiteness. Introspection can give us much in the way of psychological analysis but can furnish no genetic material. For this we must turn to anthropology and objective psychology; to the study of animals, children, and defectives. Literature and biography also furnish illustrative material. From an analysis of many cases of human shame, from the simplest to the most complicated types, the one thing universally present appears to be the feeling that the social self has lost value. Capability of shame would thus be in direct ratio to the development of the social self-consciousness and the question of animal shame directly dependent upon that of their self-consciousness. Over five hundred cases of so-called animal shame were collected, but the majority of these were rejected because of the possibility of an element of fear being present. Analysis of the residue brings out the fact that animals show the most characteristic expressions of shame as exhibited in man — always in social situations either wholly animal or in relation to man. It is in the social situations arising among gregarious animals that Lloyd Morgan finds the germs of the development of the sense of personality in animals. If we admit even a rudimentary self-consciousness in animals we have the possibility of an abasement of self which, however crude, may properly be considered as a

form of shame and possibly not very different from the earlier manifestations of shame in children.

In studying cases of shame in young children its first manifestations seem to be rather a sense of disharmony with his environment, later perhaps, a naughty self estranged from the orderly one but having little if any moral quality. Shame as a moral quality is a later development and primitive peoples are quite as sensitive to ridicule and exhibit more shame at an offence against their conventionalities than for any amount of moral depravity. Even in the most highly civilized community an individual may be overwhelmed with far more acute shame in consequence of a social blunder than for a serious moral offence, if the latter is known only to himself. Even the same act may in one environment be a source of self-congratulaton to the individual, and in another cause him to blush and want to get out of the way. In tracing the development of shame in the phylogenetic and ontogenetic series we find it coinciding with the development of self-consciousness and reflecting always in its particular manifestations the social environment. Its moral quality is a late development and arises only when there is a content of consciousness which is felt to be in disharmony with and unworthy of the ideal self.

A Marked Case of Motor Ideation. STEPHEN S. COLVIN.

In the present discussion the term ideation is used in a more comprehensive sense than the term imagery (if taken to signify only centrally aroused processes). By motor ideation in this discussion is meant both kinæsthetic imagery and kinæsthetic sensation as far as they constitute the mind-stuff of our ideational processes.

It is common to divide ideational types into two main classes, the object types (*Sachvorstellungstypen*), and the word-types (*Wortvorstellungstypen*). Under the former are to be found the concrete visual, acoustic and tactile-motor types, possibly reinforced by gustatory, olfactory, and organic ideation; while under the latter are placed the verbal types that think in printed, written, or heard words, or in speech-motor and hand-motor terms.

The writer in introspecting concerning his own ideational processes finds himself often using a kind of motor ideation that is not clearly brought out in this classification, nor as far as his knowledge goes, is emphasized in the literature. He is almost exclusively of a pure motor type, using visual imagery rarely, and with no auditory imagery whatsoever. In the main his introspections are like those both of Stricker and Dodge, but he finds over and above what is

recorded by them a kind of motor thinking that may be termed for lack of a better name dramatic or mimetic. This may express itself in a concrete form, as for example, when the thought of *flies* has as its mind-stuff either an incipient tendency to move the hand rapidly past the ear or is accompanied by the actual movement itself. In general, however, this mimetic ideation consists in motor images and sensations that are symbols of situation which they represent just as truly as words represent concrete reality. This mimetic ideation appears most markedly in the writer's case when he attempts to learn material by its meaning. This he invariably does even with nonsense material unless for the purpose of experimentation he forces himself to do otherwise. When following his natural tendency he finds himself constantly thinking in terms of movements that are signs of the meaning. In learning nonsense syllables, for example, he continually attempts to arrange them in certain sequences, which arrangement is accompanied by incipient gestures. When the series is recalled it is reinstated only through reviving these gestures and more general kinæsthetic 'sets' that were present in the original learning. The revival of this kinæsthetic ideation always takes place when the writer attempts to recollect the meaning. Whenever he introspects on his meaningful thinking, he invariably finds this mimetic tendency. Sometimes he discovers actual movements (purely symbolic of adjustment to situations), sometimes traces of incipient movement, sometimes, perhaps, mere kinæsthetic images.

Recently he has discovered another person who seems to think in the same way, a person of marked motor type in general, with ineffectual visual imagery and with no auditory imagery whatsoever. It seems probable this mimetic type, while not common, is not as rare as might at first be concluded. Very likely many of a predominant visual or auditory type have a measure of this mimetic ideation. For the writer, this form of ideation constitutes the mind-stuff of meaning, as far as he can discover; may it not be that those who believe that they have imageless thought, possess this mimetic imagination, but in so slight a degree that it never has been analyzed out in their consciousness?

An Instance of Intensive Teaching of Psychology. JOHN P. HYLAN.

In the following method the first aim was to teach thoroughly and assist the students in assimilating the subject matter.

The classes consisted of about twenty persons of both sexes and of

widely varying ages and degrees of training. As manual training was the chief common interest, the course began with muscle and nerve physiology, coördination of movements becoming the rallying point from which to approach psychology proper. The way led through the anatomy and physiology of the central nervous system, instinct, habit and will. The topics in psychology first taken up were such as are most intimately concerned with movement, and these in turn were followed by those which aided in their explanation. By following this method each function led to its explanation by a simpler one, the activity of the sense organs finally being arrived at as the source of ideas.

The regular class exercises consisted of one laboratory period and two other one-hour periods per week. In the latter, lecturing, quizzing and discussion mingled informally as the occasion seemed to require. In the general conduct of the course it was found of advantage to follow this plan:

1. At each period a lesson was given out in a text-book.
2. At the next meeting this was discussed and augmented by lecturing.
3. About once a month, or as often as a general topic was completed, the material was reviewed in conferences.
4. A paper was then written covering the same subject matter.
5. After the papers had been read and criticized by the instructor, a few would be read by their authors before the class and subjected to general criticism.

This method gave satisfactory results, and no written examinations were held.

Some Facts on the Retardation of Children. FELIX ARNOLD.

Obstructed breathing. Twenty boys were tested with and without a plug in the left nostril. In the memory test, 20 letters (five rows of four each) were studied visually for five minutes (with articulatory accompaniment) and orally (five oral repetitions). In a series of three tests, the last of which involved obstructed breathing, the fall in the number of letters correctly reproduced was 5 per cent. The increase in the number of errors was over 60 per cent. In a series of four tests, of which the second and fourth involved obstruction, the last test showed a fall of almost 17 per cent., while the number of errors increased 50 per cent. In transcription (copying for ten minutes from a second reader), there was no decrease in the number of syllables copied, but there was no increase such as one should ex-

pect from practice. The same held in the arithemetic test (division of five-place numbers by two-place numbers). The number of errors in transcription and division did not increase.

Defective vision. Eleven children of ages varying between 11 and 14 were tested with several hundred others in addition, division, transcription, and memory. The tests were the same for all grades and all ages. The defects varied between 4/20 and 10/20. These children did as well and in some cases better than the class averages and the age averages. Defective vision is physiologically harmful, but not pedagogically.

Individual difference and gradation. Over 500 children were tested in addition, division, transcription, memory, and marking crosses. The individual difference was measured by the per cent. which the M.V. is of the average. The M.V. per cent. of the grades from 2A through 6B showed a rather accelerated fall. The M.V. per cent. of the ages (8 year olds, etc., regardless of grades) showed a much slower fall when the ideal class age-averages were taken, and a somewhat less accelerated fall when the actual class age-averages were taken. The individual differences of the children, when artificially disregarded by the school, is one reason for retardation. So long as the school insists on arbitrary standards and levels of a fixed height, it will automatically retard those children varying more than a certain per cent. from the average.

A Station for the Study of Animal Behavior. JAMES P. PORTER.

Two years ago last November Clark University and College, Worcester, Mass., came into possession through a bequest of the late O. B. Hadwen of his home estate of some twenty acres. These beautiful grounds, only a short distance from the university and well within the city limits, were left to the above institutions in the terms of the will as an Arboretum and to be used for biological purposes.

From the first the possibilities of a Station for the Study of Animal Behavior have appealed strongly to those interested in such work. Mr. Hadwen was formerly a dairyman and hence a part of his bequest was a large but old barn, parts of which are now being used for winter quarters for some of our animals. Later in life the donor became a leader in horticulture and floriculture in Massachusetts and the arboretum is well planted with trees, shrubs and flowers, many of them rare and growing in small groups which furnish admirable locations for cages for birds and other animals. The donor followed no plan in planting, and it would seem purposely, at least

about the house, allowed the place to remain or become thickly set with vegetation, thus making it more desirable for our work than it otherwise would be.

On taking possession of the arboretum a small appropriation was available for moving the animals and apparatus from the university to their new quarters; also for building the latter. At that time, May, 1908, we had alligators, pigeons, parrots and spiders. At present we have some eight out-door cages and have added porcupines, foxes, woodchucks, crow, quail, and bees to our collection. Experiments on the first-named have been made with the food-box, the maze, colors, brightness, preference for the use of the right or left fore-paw as a hand and learning to reach with one or the other paw, depending on the kind of food presented. Results comparable with those previously found for higher animals have been obtained. The woodchuck will furnish us with a most interesting companion study.

This work on animal behavior is now in its merest beginnings. It has, however, a small special appropriation of its own. The investigations which are now in progress and which will be undertaken in the future may be outlined as follows:

1. Careful observation of and experimentation with both native and foreign species of animal life with the emphasis especially on the former.

2. Coöperation with Professor C. F. Hodge in his work in Nature Study and Domestication of Wild Animals in order that the practical aspects of our results on animal instincts, learning processes, etc., may receive due emphasis.

3. While much will be done to make full use of the conditions favorable for such investigation with animals under the most natural stimuli and surroundings possible, yet careful control tests with such apparatus as is necessary for scientific work will by no means be ignored.

The Spatial Values of the Visual Field Immediately Surrounding the Blind Spot. C. E. FERREE.

That there is no shrinkage of the visual field due to the influence of the blind spot has been held by Weber, Helmholtz, Wundt and others, all of whom worked with stimuli of comparatively large area. When superimposed upon the blind spot these stimuli appeared as large, for example, as similar stimuli presented to the corresponding area of the other eye.

If it be held that there is no shrinkage of the visual field due to the

influence of the blind spot, an explanation of the fact that no gap is perceived in the monocular field of vision is required. Up to this time the theory advanced by Volkmann, in 1846, has been generally accepted, namely, that the gap is filled in associatively from the surrounding background. This theory, depending for its justification solely upon the work done on the blind spot, has been extended as a general principle of explanation to other sense fields.

We find, (1) That complete shrinkage takes place when the stimuli observed are on opposite edges of the blind area. Opposite edges of the blind spot function as contiguous retinal areas. (2) There is a rapid falling-off of the influence of the blind spot upon spatial values as the stimuli recede from its edges. This zone of disturbance averages for all meridians less than one sixth the breadth of the blind spot. (3) The shrinkage in the visual field produced by the drawing together of its edges across the blind area is compensated for by a magnification of spatial values in the region immediately surrounding the blind spot. In proportion to the breadth of the zone of disturbance, this magnification is greater or less per unit area of stimulus in different meridians. It is about twice as great in the vertical as in the horizontal meridian and about one and one half times as great in the 45° meridian.

These results make possible, (*a*) An explanation of the absence of a gap in the monocular field of vision without recourse to the wholly speculative doctrine of associative filling in. (*b*) They destroy the experimental basis for its use as a general principle of explanation in other sense fields. (*c*) They indicate why Helmholtz and other observers have failed to find shrinkage. Figures whose margins extended beyond the zone of shrinkage were used and judgments made as to decrease in size or distortion in form. No effect could be noticed and none should have been expected as our results show. (*d*) They make some slight contribution to the subject of visual space perception. For example, the widely different spatial values in the zone of disturbance for the horizontal, vertical, and 45° meridians could scarcely be explained in terms of existing empiristic theories.

The analogue of this problem is now being worked out by the writer, in skin sensation. Recourse has been had by various systematists to the doctrine of associative filling in to explain why the skin should give a continuum of sensation in case of areal stimulation. So far in the work the results are wholly against such a principle of explanation.

A New Test for Attention Against Distraction. CHARLES T. BURNETT.

The test in question is for the measurement of visual attention occurring under condition of visual distraction. Two mazes are employed alike in every essential except one. Each maze is an ink line drawn in an irregular, wandering way in and out, back and forth, over a white paper surface of convenient size, say 18 × 26 cm., the starting and ending points being clearly marked. Maze No. 2 differs from Maze No. 1 in that small, embossed pictures and bits of paper of various forms and colors are scattered thickly among the twistings of the maze, though never allowed to cover any part of it. The observer follows the line as rapidly as possible with a small wooden pointer, uniformity of surface for this pointer being secured by covering each maze with a glass plate. Time is taken with a stop-watch. The amount of distraction is measured by the ratio of the time taken to follow the maze without distraction to that for following the maze with distraction.

The following advantages are alleged for this method: (1) Differences among observers in visual keenness and motor facility are neutralized (thus improving, as do all tests by the distraction method, over the A-test as a measure of attention). (2) The distracting material does not set a double task for the observer and so produce a case of distribution of attention (thus improving on the methods of mental computation, counting metronome strokes, identifying odors). (3) The observer can devote himself fully to one task, the distracting stimulus drawing him against his will. (4) The material for this test can be rather easily prepared and is not destroyed by use. (5) A standard maze could be adopted, reproduced as a wood-cut and supplied to all laboratories.

Experiments made by this method show that the material for distraction is effective to that end. Experiments are being tried in producing a maze photographically to secure uniformity in the two required for a given set of measurements. Further tests maintaining the advantage indicated in (2) above are projected, to deal with visual attention under auditory distraction and auditory attention under now visual and now auditory distraction. It seems necessary to employ some such range of tests as this in measuring capacity for attention since there is apparently no reason why a given individual might not rank low in one of these and yet high in another.

PROCEEDINGS OF THE FIFTH ANNUAL MEETING OF THE SOUTHERN SOCIETY FOR PHILOSOPHY AND PSYCHOLOGY, CHARLOTTE, N. C., DECEMBER 28, 1909.

Report of the Secretary.

The fifth annual meeting of the Southern Society for Philosophy and Psychology was held at Charlotte, N. C., on Tuesday, December 28, 1909, in conjunction with the annual meeting of the Southern Educational Association. The two sessions comprising the meeting, forenoon and afternoon, were held in the parlor of the Selwyn Hotel. The program announced was for the most part carried out, several papers being read in the unavoidable absence of their authors. The scope of the papers and the character of the discussions made this probably the best meeting in the history of the Society. By request of the Southern Educational Association, the Secretary presented at the general session of that organization on Wednesday forenoon, December 29, an extended statement of the history and work of the Society.

At the business meeting the officers for 1910 were elected as follows: *President*, Professor Edward Franklin Buchner, Johns Hopkins University; *Vice-President*, Professor Shepherd Ivory Franz, George Washington University; *Secretary-Treasurer*, Professor Robert Morris Ogden, University of Tennessee. Elections to vacancies on the *Council* constituted the elective membership of that body as follows: to serve one year, Dr. J. Mark Baldwin, Paris, France, and Mr. Reuben Post Halleck, Boys' High School, Louisville, Ky.; to serve two years, Professor A. Caswell Ellis, University of Texas, and Professor David Spence Hill, Peabody College for Teachers; to serve three years, Professor Bruce R. Payne, University of Virginia, and President Haywood J. Pearce, Brenau College.

The report of the Treasurer, presented to and approved by the Council, showed a balance on hand of $65.67.

On nomination by the Council, the following were elected to membership in the Society: Superintendent T. P. Bailey, Memphis, Tenn.; Professor Joseph M. Gwinn, Tulane University; Professor F. A. Hodge, State Normal School, Farmville, Va.; Professor John H. Keene, University of Texas; President Charles B. King, Eliza-

beth College; President S. E. Mezes, University of Texas; President Monroe, North Carolina Medical College; Professor William Benjamin Smith, Tulane University; Dr. A. H. Sutherland, Government Hospital for the Insane, Washington, D. C.

Abstracts of Papers.

The Functions of the Anterior and Posterior Association Areas of the Cerebrum. Shepherd Ivory Franz.

The present status of knowledge regarding cerebral localization was first discussed. In this general review there were considered: the recent studies on the cytoarchitectonic arrangements in the cerebrum; the results of the physiological extirpations and stimulations of the cortex in animals; and the accounts of clinical and pathological examinations of individuals in whom the cerebrum had been affected by tumors, hemorrhages, emboli, etc. From the general consideration of all the data it was shown that certain elements were to be found associated with injuries to or destructions of the frontal association cortex, and other elements with disturbances of the parieto-occipito-temporal association area. An hypothesis of the functions of the anterior and posterior areas was given. The principal part of this hypothesis is that the frontal lobes are considered motor-associational, and the posterior sensory-associational.

Tests with a Modified Binet-Buzenet Esthesiometer. David Spence Hill.

This note is to report progress upon a series of esthesiometric tests undertaken to ascertain the general effects of practice upon the median line of the forehead in the discrimination of cutaneous stimuli, but chiefly to call attention to simple devices convenient for this work. Preliminary trials with various esthesiometers — as the sliding handle, the compass and the supported compass types — were made, and finally the dictum of Judd was accepted that "These refinements, however, are unnecessary . . . the experimenter can learn to set the points" (*i. e.*, compass) "down with the greatest precision in the matter of time of contact of the two points." Upon this assumption was made a series of tests upon four persons, the results of which the writer withholds until he is able to repeat the work upon other subjects and with the new instruments about to be described, as he found the adjustable compass-type unsuitable for quantitative work. Besides other well-known sources of error he observed: (1) The leverage of the compass tended to increase the arm-tremor of operator and the diffi-

culties of simultaneous applications. (2) The readjustments were a constant source of accident and error. (3) Delays incurred in making the more refined adjustments are sometimes suggestive to the observer.

The new devices were suggested by the instrument of Binet and Buzenet (*Année Psychologique*, Tome XI.) but differ therefrom both in method of construction and in materials. Upon blocks of poplar wood (65 × 25 × 5 mm.) needles were laid by means of a calliper, the two needles of each block being separated respectively by intervals of 0, 1, 2, 3, 4, 5, 10, 15, 20, and 25 millimeters. Sealing wax held these needles in place until glue and another block were laid upon them — a method more exact than driving the needles and one saving hours of time. A brass pin was inserted similarly as a handle: in operation this pin is allowed to slip through the operator's fingers as the instrument is applied. To put the device to test, initial, practice and terminal experiments through 28 days were made upon a healthy woman. Stimuli were applied to six positions: right and left temples, right and left wrists, right and left forefingers. Practice was upon right wrist only. The results showed marked improvement in all six positions. The data are not inconsistent with Thorndike's doctrine when one considers the 'common elements' involved.

The simple instrument here offered seems to the writer to present the following advantages: (1) Reduces the first class of above errors. (2) Eliminates the second and third classes. (3) It is an easy means of demonstrating the method of right and wrong cases. (4) Construction is economical and accurate. The instruments, like some others, are limited to use upon a horizontal surface.

Voluntary Isolation of Control in a Group. JASPER C. BARNES.

This paper is the result of an experimental investigation of the independent motor control of the ring finger. The object of the experiment is to obtain voluntary control of the movements of the ring finger without moving the other fingers; to study the conscious processes preceding and accompanying the movement; the elimination or inhibition of the movement of the other fingers; the function of attention in motor control; whether the immediate psychic antecedent of movement is a feeling in the tendons and joints of the moving finger, or the idea of the movement to be made. In short, the investigation seeks to analyze the voluntary isolation of control in a group, both by introspective data given by the subjects after each test and by objective data as recorded by the kymograph.

The apparatus used for the experiment consists of two revolving

drums which enable us to use twenty-one feet of twelve-inch kymograph paper without change. In this way we are able to take the record of six persons each day. The kymograph is rotated by means of an electric motor; its speed is controlled by a Pillsbury speed-reducer. The recording apparatus consists of a box with three slots at each end in which are rods carrying small pegs that register the movements of the fingers. Strings are attached to the rods and so adjusted by the use of pulleys that the slightest movement of the fingers (middle, ring, and little), which are placed in thimbles fastened to these strings, is recorded on the kymograph. The rods are pulled back into position by means of weights. Seconds are recorded by an electric time-marker connected with a pendulum.

The ideal apparatus would record movements in all directions at each test, but we have been unable, as yet, to invent such an instrument.

So far, our experiment shows that the voluntary isolation of control of movement in a group is a problem of attention.

The Visual and the Joint-Muscle Source of the Size-Weight Illusion. (Read by title.) ROBERT H. GAULT.

The Discrimination of Articulate Sounds by Raccoons. W. T. SHEPHERD.

The paper in some respects is supplementary to a paper 'Concerning the Intelligence of Raccoons,' already published by Prof. L. W. Cole. The same four animals were used in this study as Cole and the writer had employed in the work reported by Cole. It is commonly believed that the higher mammals can be taught their names, or to discriminate articulate sounds. But no well conducted experiments have been made to determine whether such discrimination is of quality, intensity, or time of the sound. Thorndike found cats apparently able to discriminate sounds, but not with delicacy. He used complex sounds. Kalisher reported dogs able to discriminate the sounds of an harmonium.

The animals used in this study were six months old. They had been trained for two months on various motor acts, and during that training period had been given names, to which some of the animals seemed to respond. But the naming was not done regularly and no record was kept. Following that training period no work on sound discrimination had been done for two months. After two days' preliminary experiments, the animals were to show discrimination of their names, when called, by looking at the experimenter and climbing up the side of the cage. They were fed when their names were called.

Later, the name of each animal and other words, as 'no feed,' were called alternately, and the animal fed when his name was called, but not fed for the other words. Each animal was separately tested. Later, other words were called together with the name and 'no feed' signal. As further test, the names and words were called in varying tones of voice, and also by other persons beside the experimenter. None of these control tests showed any substantial differences from the percentages of correct responses already obtained.

After 18 days' experiments all the raccoons appeared to know their names perfectly, and some of them in less time. Though it might be objected that the positive reactions in part of the experiments were due to the rhythm of the alternate calling of the names and words, it is believed that the control tests, and the lack of different percentages of correct response when the calling was not alternate, permit the conclusion that discrimination took place.

One animal required 270 trials to learn to discriminate his name, another 375, a third 425, the fourth 500 trials. The writer urges that, in view of individual differences in animals, experimenters use too few animals, and so draw from their results too broad conclusions.

The Relative Value of the Affective and the Intellectual Processes in the Genesis of the Psychosis called Traumatic Neurasthenia. TOM A. WILLIAMS.

It has been commonly believed that emotional shock is a preponderant factor in chronic perturbations of the nervous system.

As a preliminary the author indicates current psychological views regarding the affectivity pleasantness and unpleasantness, 'les sentiments,' including angoisse, surprise, sexual sensation, emotion, passion, and the role of the cenesthesis. Opinions widely differ as to the classification and genesis of each of these, and experimental psychologists are appealed to for aid in solving the problems.

The author contends that emotional shock has no power to perturb for long unless maintained ideationally. He illustrates by familiar examples, and shows by other examples how different is the result when belief maintains an emotional attitude intellectually. Furthermore, the affective element of a fear neurosis need not even be primitive; it may even itself be induced. Childhood again furnishes simple examples. Emotion by suggestion has a mechanism of this kind.

Hysterical emotion is of this type and is to be contrasted with psychasthenia, which the author believes to be more largely affective

than does Janet. Ideo-genetic affective-intellectual attitudes in folk-lore illustrate this; and the author quotes one of his cases as a modern parallel where this mechanism was the foundation of both the patient's illness and cure. The reasons for failure in another case further illustrate — as do many 'false-neurasthenias' which are cured not by the rest imposed but by the reëducation then undergone.

The diagnosis and prophylaxis are then discussed in the light of the author's previous contributions.

The Consciousness of Meaning. R. M. OGDEN.

After tracing the principal results thus far obtained in the experimentation on the thought-processes which has been going forward during the past few years under the direction of Külpe (Würzburg), Binet (Paris) and Woodworth (Columbia), a preliminary report was made on the investigation of 'meaning' now in progress at the psychological laboratory of the University of Tennessee.

The method employed was that used at Würzburg. The report covers the general results obtained with four observers instructed to obtain the meanings of words called out by the experimenter, to react, and then to introspect their complete experiences. Four series of experiments have been completed. The first consisted of about 50 concrete, one-syllable nouns, *e. g.*, 'blade,' 'dial,' 'fan'; the second of 50 abstract and concrete one-syllable words, *e. g.*, 'June,' 'three,' 'it.' The third series comprised for two of the observers 100 words of the same character, 40 of which were chosen at random from the previous series; for the other two, 50 words, 20 of which were repetitions. The further series consisted in new words similarly selected, and some nonsense syllables. The instruction here was to react immediately to the sound stimulus.

The results of the first three series show a high degree of regularity in the reaction time (measured with a stop-watch) of two of the observers (average: 1.2″–1.6″). For the other two the periods are longer and irregular (4.5″–5.5″). Imageless thoughts predominate over images for all observers, though with considerable individual variations. There are also indications that the appearance of images is relatively independent of the concrete or abstract character of the stimulus word. In the simple reaction series the period, considering the crude method of measurement, is fairly constant for all observers (about 0.6″), but the content of 'meaning' is considerable for those who in the preceding series reacted quickly and regularly, whereas it is minimal for the other two.

Individual differences are striking with respect to definiteness and concreteness both of thoughts and images, also with respect to characteristic tendencies in handling the material, and in associating proximate and remote objects. The data furnished by the repeated words are insufficient for any general statement at this time.

The Psychology of Prejudice. JOSIAH MORSE.

Professor Patrick defines prejudice as 'an individual deviation from the normal beliefs of mankind, taking as the standard the universal, the general, or the mean,' and after an analysis of it concludes that it is the same as apperception.[1] According to the present writer, prejudice is not an individual deviation from a popular standard, for there are racial, national, tribal and familial prejudices as well as individual ones, but rather an *undue* prepossession for or against an idea, an object, or an act, meaning by undue that which militates against the normal development of an individual or a group either mentally, morally, or physically. Instead of being synonymous with apperception, prejudice is the exact reverse of it, — the refusal, or inability to apperceive. Apperception is the natural process of learning, of developing ideas; prejudice is the determination not to learn, the will to remain *in statu quo* mentally. The consciousness of the unduly prepossessed is loaded, as it were, with strong instinctive, emotional and volitional ingredients; they apperceive only as suits their purpose; to other equally possible and plausible points of view and arguments they are blind and deaf. In apperception the *similar* is perceived and appropriated; in prejudice the *different* is inordinately magnified and rejected.

Of course the apperceiving process has its limits. Concepts, however rich, must have some degree of definiteness, or reasoning would be impossible. Definitions, though made to be revised, are still necessary for clearness of thought. Moreover, the limits are naturally imposed by the limitations and imperfections of our organisms and consciousness, *e. g.*, our few, imperfect sense-organs, the eclectic character of attention and its narrow span, interests, habits, the sense of self and its emotional accompaniments, the various instincts, tendencies, tropisms, etc.

Assuredly, we are not perfect and without limitations. But this neither explains nor justifies prejudice. Without limits in the physical realm, organic life would be impossible; and in the mental realm consciousness would be reduced to a sea of undifferentiated sensibility.

[1] 'The Psychology of Prejudice,' *Pop. Sc. Mo.*, Vol. 36, pp. 633-643.

Within the natural limits, however, we have apperception which carries mental growth to its highest point, and prejudice overweighted with emotion, interest, habit, desire, will, etc., which arrests, cramps, and crystallizes prematurely. Between the two lies the distance of the poles. The one belongs to normal psychology, the other more properly to abnormal psychology.

The Concept of 'Laws of Nature.' E. E. RICHARDSON.

This paper had especial reference to the views of Professors Pearson and Taylor concerning the laws of nature.

Consideration was first directed to the question as to whether the presence of purposiveness is inconsistent with the determination in advance of what individual action will be. This question further divides itself into two parts depending on whether the calculation that is attempted has its basis in general laws or is derived from knowledge of the particular individual. The position taken was that the presence of teleological elements did not invalidate the application of mechanical laws.

The paper passed from this preliminary question concerning the presence of purposiveness where natural laws are made applicable, to a consideration of the nature of these laws. The main issue here is whether these laws are merely descriptive — a condensed expression of perceptual experience — or are explanatory of the phenomena. In other words, whether the laws of nature have an existence independent of the percipient or not. Brief mention of certain typical views in this regard was made. The point was made that those who regard these laws as being merely descriptive should show why they are universally accepted, and why some are more applicable to perceptual experience than others. The uniformity of experience is also to be taken into account in this same connection. Those who consider scientific laws, so-called, as descriptive in their nature, must account for the general agreement by those competent to express an opinion in respect to these various laws, and for the fact that the number of these shorthand condensations of experience are not more numerous, considering the large number of individual experiences. An explanation can be found for this, however, in the Kantian or a similar position. This last becomes an intermediate position between the two opposing views previously indicated. The Kantian distinction between the general and more particular laws — the former due to our constitutive nature and the latter derived by a process of induction — was not agreed with.

The trend of the paper was to show (1) that purposiveness was not inconsistent with mechanical or scientific calculation, and (2) that natural laws have an ontological significance.

The Evolution of the Sense of Beauty from the Point of View of Genetic and Social Psychology. (Read by title.) WILLIAM D. FURRY.

The Growth of the Concept of Evolution Among the Greeks; President's Address. ALBERT LEFEVRE.

The first inquiry of the Greeks into the nature of the primary substance led them to face the question of evolutionism as such, namely, how can new forms be derived from primary ones. The central difficulty of the Ionic school was that of every evolutionary theory. The apparent logical incompatibility of being and becoming led the Eleatics to adopt an extreme anti-evolutionary position, and Heraclitus, on the other hand, to formulate his view of reality as involved in a continual yet uniform process of change. To overcome this contradiction the search for a single primary substance was abandoned, and there arose the view that the real itself is a plurality. There can be perpetual change in the relative positions of elements, and likewise permanence in the essence and properties of substances. This implied the adoption of the idea of mechanical conjunction in place of the idea of change as inner transformation. Three theories advanced almost contemporaneously exhausted the logical possibilities of the fresh situation. Anaxagoras maintained a preformation view, Empedocles occupied a mediating position, while the atomists presented an epigenetic theory. As a result of the implications of these systems, the question of mechanism versus design became prominent. In the humanistic reaction of the Sophists, the concept of evolution among the Greeks was halted in its growth. In misapplying Heraclitus' view of cosmic flowing, Protagoras was forgetful of Heraclitus' ξυνὸς λόγος, which apprehends the fixity and universality of the order of the process. In opposition, Socrates is led to overstress the fixation of the common concept, and thus he prepared the way for Plato's static idealism. The Greek philosophy of nature thus developed into a philosophy of the conscious. The dilemmas between change and permanence and between mechanism and teleology were resolved by Plato into the dualism of appearance and reality. The concept of evolution (of potentiality, development, and entelechy) is evolved by Aristotle to overcome the Platonic dualism of phenomena and

noumena, as previously it had been employed to synthetize the cosmological antinomy. The notion of specific potential presence in the source is offered by Aristotle as a solution of the formal disjunction between literal preformation and epigenesis; the notion of immanent purpose, as the reconciliation of the issue between mechanical causation *a tergo* and the ordering of an external designing agency; the notion of intrinsic organic transition, as the substitute for mechanical conjunction; while the permanency of final reality is interpreted as the anticipated end of the process of becoming, whose actuality consists in the act of developing; the particular finds itself in its own evolving universality. This teleological evolutionary idealism is the logical consummation of the growth of the concept of evolution among the Greeks.

NOTES AND NEWS.

ACCORDING to *Science*, the Special Board for Moral Science of Cambridge University has called the attention of the senate to the need of more adequate accommodation for the laboratory of experimental psychology. At Oxford an excellent laboratory devoted to experimental psychology has recently been erected.

MRS. MARTHA S. JONES, of Boston, Mass., has presented her estate and magnificent parks near Portsmouth, N. H., to Dr. Boris Sidis, of Brookline, Mass., for the purpose of establishing a private hospital, to be named 'The Maplewood Farms, Sidis Psychotherapeutic Institute,' in which modern methods of psychopathology and psychotherapeutics will be employed in the treatment of functional nervous diseases. The hospital will open in the early spring.

PROFESSOR JOHN DEWEY gave a series of six lectures on 'Aspects of the Pragmatic Movement of Modern Philosophy' at the Johns Hopkins University during the first week in February.

THE following are taken from the press:

THE Fourth Congress for Experimental Psychology will meet at Innsbruck April 19 to 22.

A COURSE of lectures upon abnormal psychology will be given by Dr. Morton Prince, of Boston, at the University of California, from January to April.

DR. SHEPHERD IVORY FRANZ, psychologist at the Government Hospital for the Insane, Washington, D. C., has been appointed scientific director of that institution.

A. H. SUTHERLAND, Ph.D. (Chicago), of the Government Hospital for the Insane at Washington, has been appointed instructor in psychology in the University of Illinois.

PROFESSOR ROLAND B. DIXON, of Harvard University, has been elected vice-president of Section H of the American Association for the Advancement of Science — the section for anthropology and psychology.

DR. KARL GROOS, professor of philosophy and pedagogy at Giessen, has resigned his chair at the university.

ANNOUNCEMENT.

THE publishers regret to announce the resignation of Professor J. Mark Baldwin as editor of these publications after sixteen years' activity. The PSYCHOLOGICAL REVIEW was founded by Professors Baldwin and Cattell in 1894. It was successful from the start, and has become the center of several publications covering different types of contributions to psychology. The Review Publications will hereafter be conducted by the present editors of the REVIEW, BULLETIN, and MONOGRAPHS.

Contributions, books, and editorial correspondence may be addressed to any one of the responsible editors.

Business communications for all the Publications should be addressed to PSYCHOLOGICAL REVIEW, Johns Hopkins University, Baltimore, Md.